

## Claims

1. A rail welderhead comprising:

two opposing pairs of quadrants constructed and arranged to close on adjacent rail sections and provide rail clamping by engagement of pads provided on the rail sections, the opposing pairs of quadrants defining a firebox therebetween; and

a shear die fully enclosed within the firebox such that, when the welderhead's opposing quadrants are in a fully closed position, the shear die, the fully sheared weld, and the weld collar are contained within the firebox.

2. The rail welderhead of claim 1, wherein the shear die set is actuated through push rod and shaft assemblies.

3. The rail welderhead of claim 1, wherein the adjacent rail sections are welded by flash butt rail welding.

4. The rail welderhead of claim 1, wherein the opposing pairs of quadrants are operative to pull and stretch the adjacent rail sections.

5. The rail welderhead of claim 1, wherein the opposing pairs of quadrants are operative to provide forging load for the adjacent rail sections, and shear die operation is performed without releasing rail tension and forging load.